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REMARKS

Claim 7 was objected to because the dependency of claim 7 was not included. Claim 7 has been amended to cure the deficiency.

Claims 1-6 and 9-11 were rejected under 35 USC § 112, second paragraph as being indefinite. The Examiner indicated that the terms "determining the existence of a contour line" was unclear. Claim 1 has been amended to clarify this feature. Additionally, the Examiner indicated that the terms "a next state" were also unclear. Claim 1 has been amended to clarify this feature.

Claims 1-18 were rejected under 35 USC § 102(b) as being anticipated By Beckwith, Jr., et al. The present invention is a method and apparatus for generating a contour line by providing real time generation of a contour plot image of contour lines without requiring either preprocessed contour line images or specific electronic hardware. The present invention maintains an ongoing current contour line state, which enables fast determination of contour line points without explicit comparison of multiple neighboring elevation points.

Beckwith creates contour lines in a similar manner as described in the Background Art section of the pending patent application. Beckwith teaches using the each of 4 neighboring data points and an algorithm to create a contour line.

The Examiner makes incorrect linkages between what Beckwith does and the present claimed method and apparatus. For example, the Examiner maintains that the device of Beckwith moves to a next state. "State" has a specific meaning as defined in the specification at page 4, lines 18-21 and page 6, line 29 through page 7, line 2. However, Beckwith doesn't maintain state - no state data is recorded and used during the processing of the next data point. The present claims do record state data (the row and column data). Of particular difference between the two is that Beckwith performs a comparison between the current data point its 4 neighbors. The key to the present invention, and really the whole

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point of it, is to compare against the two stored state values and not against all four neighbors.

The Examiner indicates in his rejection that Beckwith teaches the step of "b) comparing a second data point with the first state see for example column 12 lines 45-50". The Beckwith method compares the data points with each other, it does not save any state information between comparisons. It "saves" the 4 neighboring points into memory so that it can perform the comparison computation. This is not a "state", as specifically defined in the specification of the present invention because the information is not retained over the course of processing the input data. The saved data is merely the input data itself.

The present invention explicitly saves state information, which is different from the data itself. The state consists of information describing where the previous contour line occurred. The second data point is therefore compared with the saved state information and not with the neighboring points, as is done in Beckwith.

The Examiner also indicated that Beckwith discusses the step of "c) determining an existence of a contour line see for example column 17 line 14 for the determination of existence of a contour line". From column 17 line 14-15, Beckwith is comparing 5 data points – the current data point under scrutiny is compared with its 4 neighbors to determine if a contour line exists.

The present invention is unique in this regard. It does not compare directly against neighboring data points, as does Beckwith. Instead, it compares the current data point under scrutiny with the saved state data (identified as the row and column data, not to be confused with the elevation data being processed). Thus there are only two comparisons instead of the 4 required by the Beckwith method.

Further, the Examiner indicated that Beckwith includes the step of "d) updating a first state to a next state, if the contour line exists see for example column 17 lines 15-21 for the generation of a signal to display the data point as part of the contour line and column 17 lines

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38-40 for the storing the next state in a memory". As described in Beckwith lines 38-40, an output is being generated for an entire row. This does not comprise a state, but rather an accumulation of input data values. As noted in response to c) above, determining the existence of a contour line by Beckwith requires comparing the data point under scrutiny with its 4 neighbors. The accumulation described in 38-40 is merely one rows worth of data accumulated for use when performing the comparisons.

The present invention by contrast does save an explicit state, which is updated any time a contour line has been determined. The state (identified as the row and column data) contains the last encountered contour line for the row, and for each column. If a contour line is encountered, then this state data is updated.

The examiner goes on to state that the step of "e) creating a portion of a contour line image, if the contour line exists see for example column 17 lines 15-21 for the displaying of the data point as part of a contour line, and a display see for example figure 3 block 75 for the display" is also described in Beckwith. Beckwith, in lines 15-21 describes generating a signal to the display when a portion of a contour line exists. The present invention, as claimed, by contrast accumulates an entire image, which is then presented to a display mechanism.

Thus, it is clear that the Beckwith device is significantly different than the claimed invention since these important features are not taught in Beckwith. To further show the novel features of the invention claims 1 and 15 have been amended to show that the row and column data is the state which is being saved, and updated when the step of determining the existence of a contour line. It is the input elevation data that is being looped over and processed into a contour image. A data point from the input elevation data is compared against the current state (row and column data) to determine if a contour exists. Independent claim 12 has not been amended because the claims specifically calls for the feature of determining whether a contour line point has been detected by comparing the row base elevation value or column base elevation value plus the contour interval to the elevation data. This is similar to the state as claimed in claims 1 and 15, which is not defined, stated or

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implied in Beckwith. Therefore, independent claims 1, 12 and 15 are allowable along with the dependent claims.

No extension of time or other fees are believed to be due, except as detailed in the attached documents. However, any extension of time necessary to prevent abandonment is hereby requested, and any fee necessary for consideration of this response is hereby authorized to be charged to Deposit Account Number 01-1125.

In view of the foregoing all of the claims in this case are believed to be in condition for allowance. Should the Examiner have any questions or determine that any further action is desirable to place this application in even better condition for issue, the Examiner is encouraged to telephone applicants' undersigned representative at the number listed below.


Honeywell International Inc.
Law Dept. AB2, P.O. Box 2245
Morristown, NJ 07962-9806
Tel: (505) 899-0269

Date: 5-10-05

Respectfully submitted,

CRAIG L. SCHIMMEL

By:


Dennis F. Armijo
Registration No. 34,116